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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,773	03/25/2004	Zbigniew Zurecki	06487 USA	7938

23543 7590 04/26/2007
AIR PRODUCTS AND CHEMICALS, INC.
PATENT DEPARTMENT
7201 HAMILTON BOULEVARD
ALLENTOWN, PA 181951501

EXAMINER

DOERRLER, WILLIAM CHARLES

ART UNIT	PAPER NUMBER
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3744

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/809,773

Applicant(s)

ZURECKI ET AL.

Examiner

William C. Doerrler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address.

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6-24, 26-30, 33-51 and 53-60 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3, 6, 9-22, 28-30, 33, 36-49 and 55-60 is/are allowed.
- 6) ☒ Claim(s) 7, 8, 23, 24, 26, 27, 34, 35, 51, 53 and 54 are is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-548) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2-26-2007</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 24,26,27,51,53 and 54 are rejected under 35 U.S.C. 102(b) as being anticipated by Hong (WO99-60079).

Hong discloses a machining process which sprays liquid cryogen on the intersection of the workpiece and the tool. This is disclosed to make the workpiece harder in line 23 of column 2. Since Hong's method is the same as applicant's claimed method, the workpieces are seen to have the same properties. This is especially true for claims 26 and 53 which are product by process claims. Since the process of Hong is the same as applicant's, the products produced thereby are seen as having the same properties.

The fact that Hong's invention is different from applicant's claimed process, does not negative that fact that he states that processes like applicant's were previously known.

The fact that Hong teaches that the prior art process makes the workpiece harder is not seen to teach away from applicant's claim that a piece using the prior art cryogen spray method is made harder.

Claims 23,24,26,27,51,53 and 54 are rejected under 35 U.S.C. 102(b) as being anticipated by Zurecki et al (WO02-096598).

Applicants' earlier PCT discloses a machining process which sprays liquid cryogen on the intersection of the workpiece and the tool. This is disclosed to make the tool harder and stronger. Since applicant's earlier method is the same as applicant's currently claimed method, the workpieces are seen to have the same properties. This is especially true for claims 26 and 53 which are product by process claims. Since the process of applicant's earlier publication is the same as applicant's current method, the products produced thereby are seen as having the same properties. One of ordinary skill in the art would be led to use applicants' earlier method to prolong the life of the tool involved. In so doing, the workpieces produced by the two processes will be inherently have the same properties as they process the workpieces the same way.

Claims 7,8,23,24,26,27,51,53 and 54 are rejected under 35 U.S.C. 102(b) as being anticipated by Hong (5,901,623).

Hong discloses spraying cryogen onto a workpiece at the site where the tool meets the workpiece. Lines 60-62 of column 1 state that the material gets harder. Lines 63 and 64 of column 9 state that the surface of the workpiece is improved, this is seen as improving the surface integrity of the workpiece during the shaping. In regard to claim 8, the cryogen is seen as performing heat treatment on the piece. Since Hong's method is the same as applicant's claimed method, the workpieces are seen to have the same properties. This is especially true for claims 26 and 53 which are product by process claims. Since the process of Hong is the same as applicant's, the products produced

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thereby are seen as having the same properties. In regard to claims 25,27,52 and 54, Hong is seen to eliminate the need for cleaning the piece. Claims 23 is also seen as a product by process claim. While the reference may be silent as to the characteristics being claimed, these characteristics are seen as inherent as the two processes (Hong's and applicants') are the same.

Claims 23,24,26,27,51,53 and 54 are rejected under 35 U.S.C. 102(7,8,23,24,26,27,51,53 and 54b) as being anticipated by Dudley (3,971,114).

Dudley discloses spraying cryogen onto a workpiece at the site where the tool meets the workpiece at an angle to avoid any chips. Line 38 of column 4 states that the surface of the surface of the workpiece is improved. This is seen as improving the surface integrity of the workpiece during the shaping. Since Dudley's method is the same as applicant's claimed method, the workpieces are seen to have the same properties. This is especially true for claims 26 and 53 which are product by process claims. Since the process of Dudley is the same as applicant's, the products produced thereby are seen as having the same properties. In regard to claims 27 and 54, Dudley is seen to eliminate the need for cleaning the piece. Claim 23 is also seen as a product by process claim. While the reference may be silent as to the characteristics being claimed, these characteristics are seen as inherent as the two processes (Dudley's and applicants') are the same.

Claims 7,8,34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Lightstone et al (3,979,981).

Lightstone et al disclose a method which cryogenically cools a workpiece prior to machining (see abstract). Cryogenically cooling the workpiece is seen as a heat treatment.

Allowable Subject Matter

Claims 1-3,6,9-22,28-30,33,36-49 and 55-60 are allowed.

Response to Arguments

Applicant's arguments filed 2-26-2007 and 3-29-2007 have been fully considered but they are not persuasive. It is agreed that the references do not show applicant's impingement and spread angle. All claims which claim these angles have been indicated as allowable. Applicant states that the prior art statement relied upon in Hong teaches away from applicant's invention. However, the following paragraph (beginning on page 2 line 24), states that a different prior reference states that it is time to revisit the use of liquid nitrogen as a coolant during machining. Hong '623 states in lines 55 and 56 of column 1 that it is known to "prechill" workpieces uses cryogens. This is seen as a prior heat treatment. Hong's discloses improved work surface quality is seen to inherently reduce steps. It is further noted that what steps are required is an engineering decision made by the part designer. It is possible that a reasonable decision can be made to eliminate a process step for cost reasons. As none of the references explicitly state a requirement for further treatment, It is seen that the workpieces produced by each of the references can be used without further steps.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

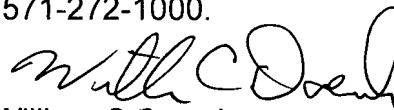
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Doerrler whose telephone number is (571) 272-4807. The examiner can normally be reached on Monday-Friday 6:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



William C Doerrler
Primary Examiner
Art Unit 3744

WCD

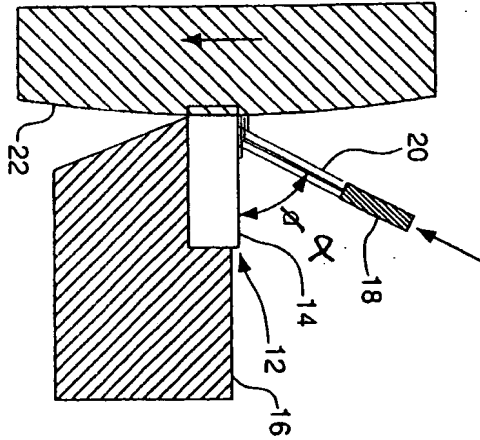


FIG. 1A

a amended to
read α

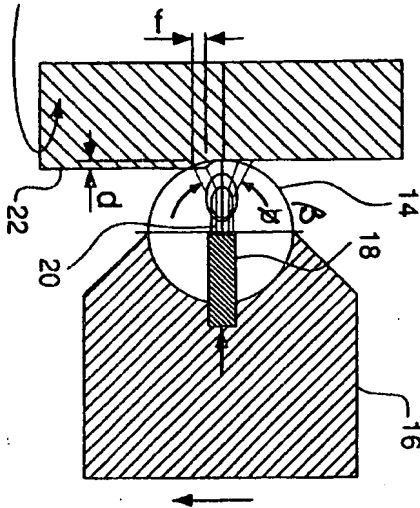


FIG. 1B

b amended to
read β

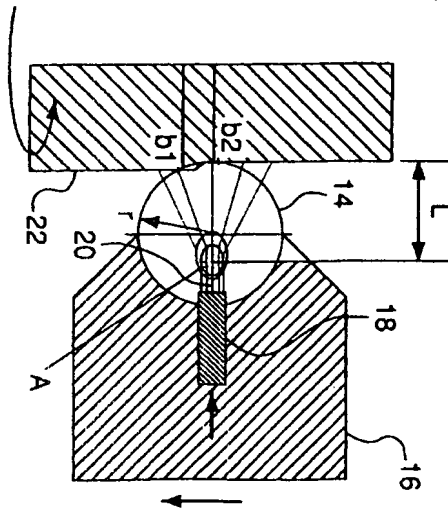


FIG. 1C

Approved
WCE
4-17-07



Approved
 WSD
 4-17-07

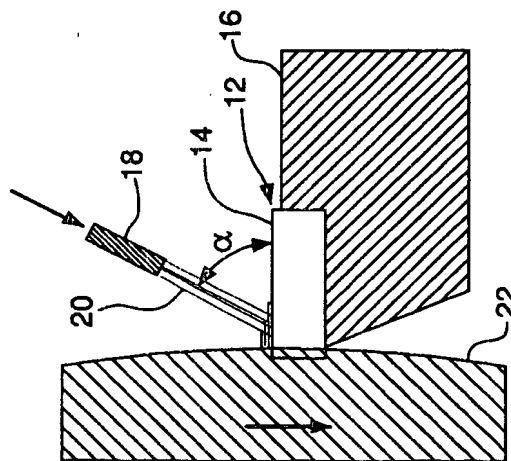


FIG. 1A

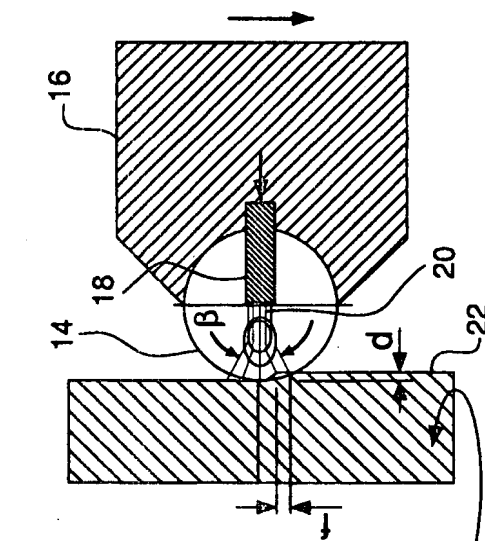


FIG. 1B

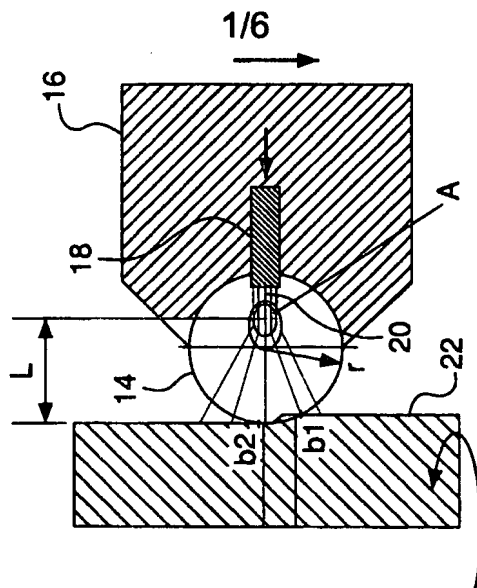


FIG. 1C